Form 502 (Rev. July 1963)

UNITED STATES DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
BUREAU OF COMMERCIAL FISHERIES

OPERATING PROGRAM

Field Station or Office of Origin	Region or Area	
Woods Hole, Massachusetts	Region 1, Gloucester, Massachusetts	
Subactivity (Symbol and Title)	**Program Title:**	**Program No.**
131 Coastal and Offshore Research	Benthos	131.35

PROGRAM COMPONENTS OF COST	Previous Program	This Action	Current Program
10. Personal Services (Detail on reverse side)		30,415	30,415
21. Travel and Transportation of Persons		500	500
22. Transportation of Things			
23. Rent, Communications & Utility Services			
24. Printing and Reproduction			
25. Other Services			
26. Supplies and Materials		1,500	1,500
31. Equipment		1,000	1,000
Other			
Sub Total Program Direct Cost		33,415	33,415
Program Indirect Cost - N/A		8,000	8,000
TOTAL OPERATING PROGRAM		~~41,415~~ 41,415	~~41,415~~ 41,415

BREAKDOWN BY PROGRAM FEATURE

NUMBER	PROJECT	Previous Program	This Action	Current Program
A	Benthic Fauna (NOTED BY REGIONAL OFFICE)		33,415	33,415
	Sub Total Program Direct Cost		33,415	33,415
	Program Indirect Cost - N/A		8,000	8,000
	TOTAL OPERATING PROGRAM		~~41,415~~ 41,415	~~41,415~~ 41,415

ESTIMATE OF EXPENDITURES BY QUARTERS - F.Y. 19

Object Class	First	Second	Third	Fourth
Personal Services				
All Other Expenditures				
Total Operating Program				

Prepared By: Name _____ Title _____ Date _____

Approved By: Norbert W. Graham Laboratory Director 7/19/63 Date

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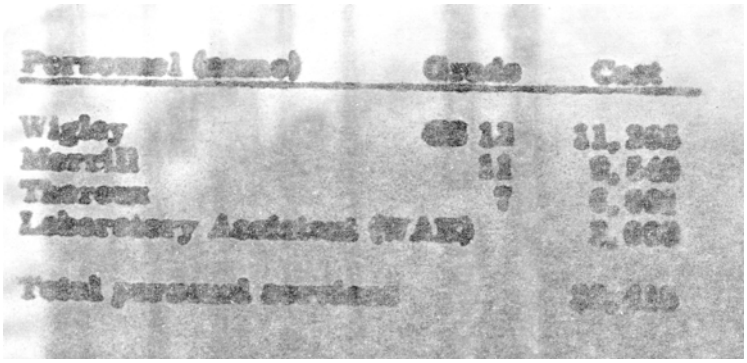


Region #3

Briefing Statement
(In thousands of dollars)

Program with Increase

Coastal and Offshore Research
(Subactivity)

No.	Title		1965	Increase	1964	1963	1962
		$	86.0	2.0	84.0	84.0	75.4
131	Benthos	PP	2	2	2	2	2

Increase:

Need: Nominal increase required to cover salary increases and increased material costs. No expansion.

Work plan: To complete the identifications and the analyses of samples already collected and to be collected during the year.

Objective: To facilitate the completion of the surveys and reporting of results.

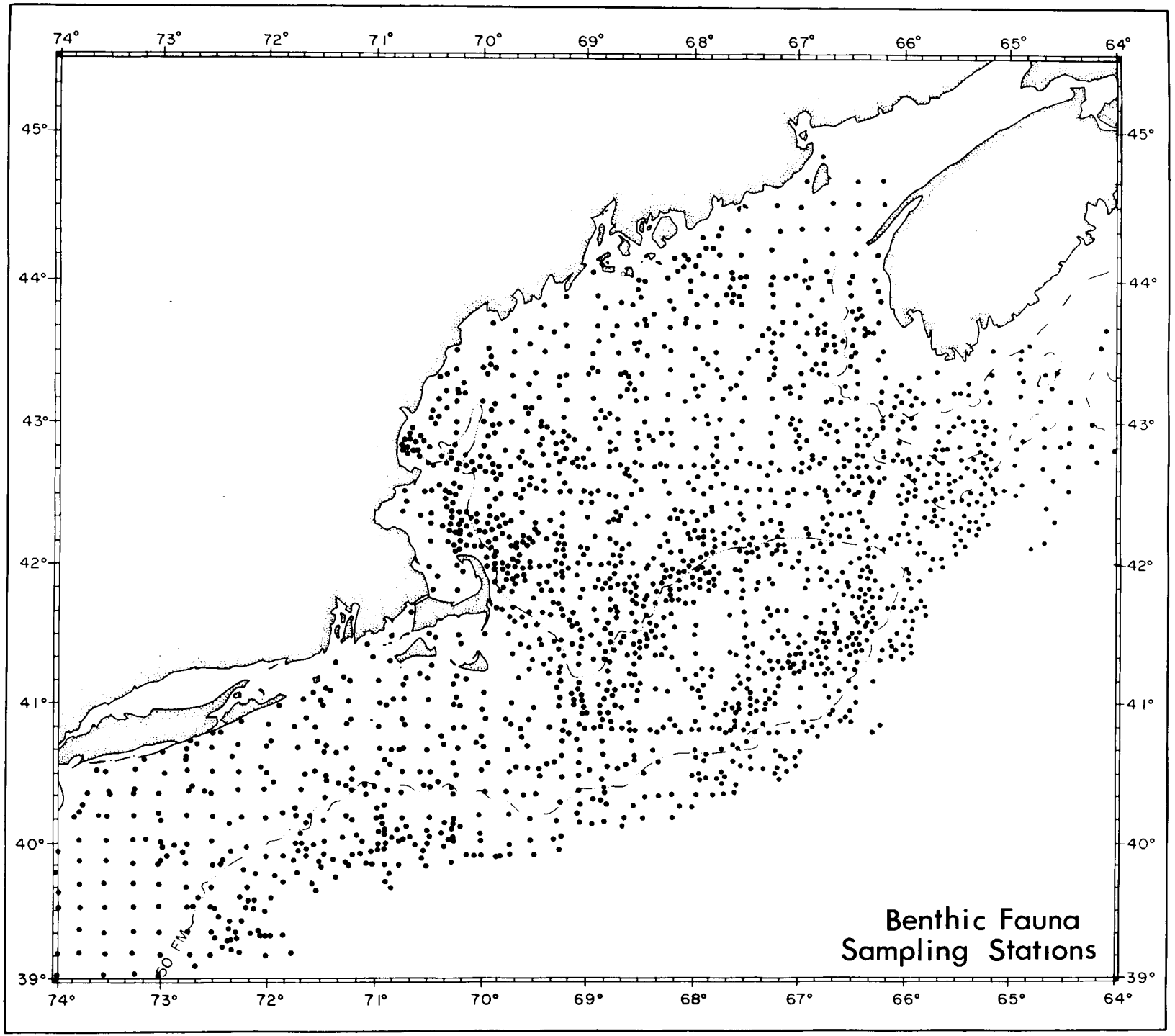
Additional positions: None.

Program:

Objective: To describe the bottom fauna of the Continental Shelf and determine its role in supporting the fisheries of the Northwest Atlantic.

Accomplishments FY 1963: An inventory of the larger bottom organisms in the northern and central Gulf of Maine was completed. Sampling in the area south of Marthas Vineyard and off Nantucket was completed. A special study of the microscopic bottom fauna in southern New England was completed. Over half of the samples of larger organisms from the southern New England area were analysed. Several special reports on animals found were published in scientific journals.

Base of Operations: Woods Hole, Massachusetts.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Benthic Fauna
Sampling Stations

Review of Benthic Studies on New England Fishing Banks

Biological investigations by the newly organized U. S. Fish Commission during the 1870's and 1880's was, in part, devoted to studying the New England offshore benthic macrofauna. This early work, conducted by A. E. Verrill, S. I. Smith, O. Harger, W. H. Dall, H. A. Pilsbry, A. Agassiz and many other eminent Zoologists, was encouraged and guided by Spencer Baird and the Fish Commission. However, around the turn of the century these investigations went unsupported and were virtaully abandoned. As a result, our knowledge of the systematics of this fauna remains incomplete and zoogeographic and quantitative studies were not begun until the mid-twentieth century. Not only is there a lack of comprehensive macrobenthic studies, but only a few ecologically oriented reports are available concerning particular areas (Smith and Harger, 1874; Verrill, 1882a, 1882b, 1884; Agassiz, 1888).

From that era until the 1950's there were no significant benthological studies conducted in these offshore waters.

The Benthos Program was established at the BCF Biological Laboratory at Woods Hole because of the lack of appropriate knowledge of invertebrate predators, competitors, and food supplies relating to commercial groundfish stocks, and because of the inability to interpret groundfish food habit studies (Wigley 1956, 1962, 1963c) without general information about the kinds, quantities, and distribution of the food organisms.

The first quantitative study of New England offshore benthic fauna was undertaken by the Benthos Program in 1957 (Wigley, 1961a; Wigley and Theroux, Ms). Selected sections of the New England shelf are studied as time and facilities permit. In 1962 the scope of this Program was expanded by cooperating with the Woods Hole Oceanographic Institution - United States Geological Survey (WHOI-USGS) Atlantic Continental Shelf and Slope Study Program (Emery and Schlee, 1963). This cooperative arrangement is particularly beneficial because the WHOI-USGS group is primarily concerned with geological studies. We previously expended considerable effort studying bottom sediments (Wigley 1961c), whereas under the cooperative agreement we are furnished detailed sediment data both in the form of raw data and published reports.

In addition to the WHOI and USGS personnel, the Benthos Program is actively cooperating with 17 scientists from 12 universities or research laboratories. Most of these cooperating scientists are systemitists engaged in studying special groups of marine life. Other programs at this laboratory cooperate with the Benthos Program by providing qualitative and semi-quantitative benthic fauna samples that are incorporated into our studies (Wigley, 1960a).

Benthic components other than the macrofauna have received little attention. The meiobenthos in Gulf of Maine and contiguous waters is virtually unknown, except for the studies by Parker (1948, 1952) and Phleger (1952) pertaining only to foraminifera, and a general study by Wigley and McIntyre (Ms.).

Our immediate task is to complete the quantitative reconnaissance survey of the Continental Shelf, follow this with quantitative studies of seasonal or yearly changes of 5 or 10 key organisms, and eventually undertake detailed investigations (population dynamics) of one or more particularly important benthic communities.

Agassiz, A.
1888. Three cruises of the U. S. Coast and Geodetic Survey steamer Blake in the Gulf of Mexico, in the Caribbean Sea, and along the Atlantic Coast of the United States, from 1877-1880. Bull. Harvard Mus. Comp. Zool. 14: 1-314.

Emery, K. O. and John S. Schlee
1963. The Atlantic Continental Shelf and Slope, a program for study. Geol. Sur. Circular 481, 11 pp.

Parker, Francis L.
1948. Foraminifera on the Continental Shelf from the Gulf of Maine to Maryland. Bull. Mus. Comp. Zool., 100(2): 213-241.

Parker, Francis L.
1952. Foraminifera species off Portsmouth, New Hampshire. Bull. Mus. Comp. Zool., 106(9): 391-423.

Phleger, Fred B.
1952. Foraminifera ecology off Portsmouth, New Hampshire. Bull. Mus. Comp. Zool. 106(8): 315-390.

Smith, S. I. and O. Harger
1874. Report on the dredgings in the region of St. George's Banks in 1872. Trans. Conn. Acad. Arts and Sci. 3(1): 1-57.

Verrill, A. E.
1882a. Notice of the remarkable marine fauna occupying the outer banks off the southern coast of New England, No. 3. Amer. Jour. Sci. 23: 135-142.

Verrill, A. E.
1882b. Notice of the remarkable marine fauna occupying the outer banks off the southern coast of New England, No. 5. Amer. Journ. Sci. 23: 309-316.

Verrill, A. E.
1884. Notice of the remarkable marine fauna occupying the outer banks off Southern New England, No. 9. Amer. Jour. Sci. 28: 213-220.

Wigley, Roland L.
1956. Food habits of Georges Bank haddock. U. S. Fish and Wildlife Service, Spec. Sci. Rept: - Fisheries, No. 165, 26 pp.

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1960a. Note on the distribution of Pandalidae (Crustacea, Decapoda) in New England waters. Ecology 41(3): 564-570.

Wigley, Roland L.
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1961a. Benthic fauna of Georges Bank. Trans. North Amer. Wildl. and Nat. Res. Conf. 26: 310-317.

Wigley, Roland L.
1961b. A new isopod, Chiridotea nigrescens, from Cape Cod, Massachusetts. Crustaceana 2(4): 286-292.

Wigley, Roland L.
1961c. Bottom sediments of Georges Bank. Jour. Sedimentary Petrology, 31(2): 165-188.

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1963b. Occurrence of Praunus flexuosus (O. F. Müller) (Mysidacea) in New England waters. Crustaceana 6(2): 143.

Wigley, Roland L.
1963c. Density-dependent food relationships with reference to New England groundfish. Ms.

Wigley, Roland L. and A. D. McIntyre
1963. Some quantitative comparisons of offshore meiobenthos and macrobenthos south of Martha's Vineyard. Ms.

Wigley, Roland L. and Roger B. Theroux
1962. Quantitative reconnaissance survey of the Georges Bank Benthic fauna. Ms.

Wigley, Roland L. and Roger B. Theroux
1962. Food habits of Highlands Ground haddock. Ms.